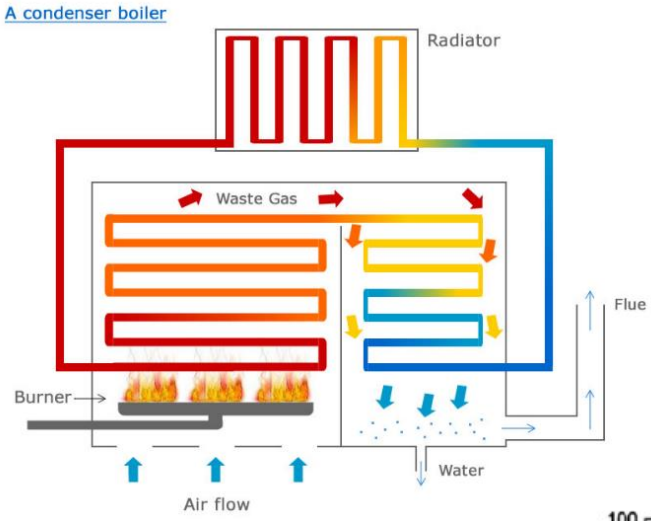
## Improving your boiler efficiency

Do you have a boiler that is less than 10 years old?

If you do then it is probably an A rated condensing boiler. However many boiler installations are sub-optimal and result in lower efficiency than the boiler can actually achieve. If you your boiler sends out big clouds of white gas (steam) on a cold day then the chances are that it is not running optimally.

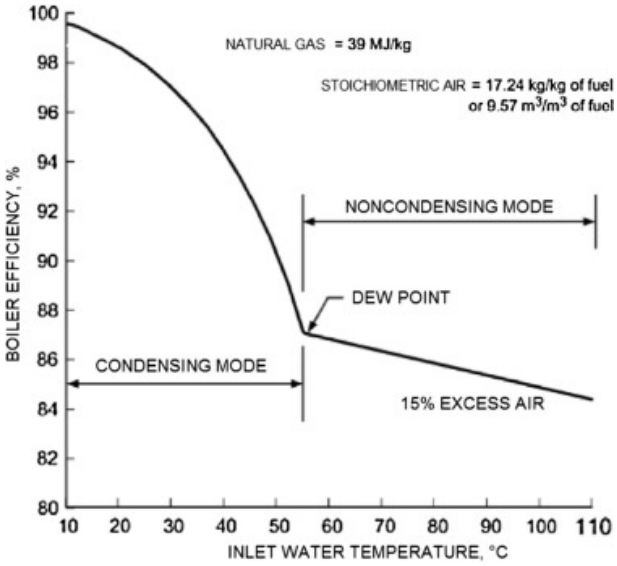
Getting your system optimised could save 10% on your gas bill – with no loss of comfort (i.e. the same heat is provided to heat your home but by using less gas).

It all comes down to boiler flow temperature – this is the temperature of the central heating fluid as it leaves the boiler, this fluid passes through your radiators and cools down (as the heat is transferred to the room) the cooler fluid returns to the boiler and its temperature is called the return (or inlet) temperature. Heating systems are usually set up to give a 20degC difference between the flow and return temperatures.




Basically a condensing boiler – as the name implies, uses the energy contained in the water vapour or steam in the boiler flue gas to pre-warm the returning fluid. The water vapour condenses into liquid water and releases its latent heat thereby warming the return fluid a few degrees. This reduces the amount of work that the boiler needs to do to return the radiator fluid to the flow temperature, thereby saving you gas and money. See graphic to the left.

The key is to operate your heating at a low flow temperature where possible as the lower the return temperature the higher the condensing efficiency – in fact if the return (or inlet) temperature is above 55degC i.e. when the flow temperature is above 75degC then there is no condensing at all (see graph to the right).




A lower flow temperature will mean that you may need to keep your system running for longer to get the same heat into the house. However there are many advantages to running your system cooler – these include that more of the heat is transmitted as radiation rather than as convection leading to the room feeling warm at a lower actual room temperature. A lower flow temperature also reduces the cycling of the boiler which can be annoying (system creaking) and reduces corrosion thereby improving boiler life. However in very cold weather you may need to increase the flow temperature to maintain the desired room temperature, although this depends on how well your house is insulated.

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If you have a hot water cylinder (often referred to a 'system' or 'S' configuration) then an important factor to consider is that your hot water should be periodically raised to above 60degC to prevent legionella from forming (although the risk is low in a domestic property due to its relative simplicity and frequent use). This can be done by periodically (weekly) raising the flow temperature or by switching on the immersion heater (set to a temperature above 60degC) for a few hours.


Alternatively you can avoid all those hassles by simply fitting better controls to your system. Many people have fitted smart thermostats (such as Google Nest) but these only allow more exact control of room temperature. To get the benefits described above consider getting Weather compensation controls fitted. These will ensure the boiler is operating at its most efficient point at all times of the year. Weather Compensation use an external temperature sensor to set the boiler flow temperature to ensure you have sufficient heat but at maximum condensing and thus efficiency, some systems even have prediction based on weather forecasts.

All boiler manufacturers offer Weather Compensation controls and with the price of gas set to stay high they offer an excellent payback on initial outlay – speak to your regular gas service technician for advice on which products work best with your system – or alternatively contact your boiler manufacturer directly to find an expert system installer.